WHAT IS CLAIMED IS:

1. A method for inducing insulin gene expression in cultured endocrine pancreas β-cells, the method comprising the steps of:

(i) expressing a recombinant NeuroD/BETA2 polynucleotide and a recombinant PDX-1 polynucleotide in endocrine pancreas β-cells that have been cultured under conditions such that the β-cells are in contact with other cells in the culture; and

(ii) contacting the cells with a GLP-1 receptor agonist, thereby inducing insulin gene expression in the β-cells.

2. The method of claim 1, wherein the GLP-1 receptor agonist is a GLP-1 analog.

3. The method of claim 1, wherein the GLP-1 receptor agonist has an amino acid sequence of a naturally occurring peptide.

4. The method of claim 3, wherein the GLP-1 receptor agonist is GLP-1, exendin-3, or exendin-4.

5. The method of claim 1, wherein the cells are cultured as aggregates in suspension.

6. The method of claim 1, wherein the β-cells are human β-cells.

7. The method of claim 1, wherein the β-cells express a recombinant oncogene.

8. The method of claim 7, wherein the β-cells express more than one recombinant oncogene.

9. The method of claim 1, wherein the β-cells express a recombinant telomerase gene.

10. The method of claim 1, wherein the β-cells are βlox5 cells.

11. A method of identifying a compound that modulates β-cell function, the method comprising the steps of contacting cells made by the method of

claim 1 with the compound and determining the effect of the compound on β-cell function.

12. A stable culture of endocrine pancreas β-cells, wherein the β-cells are in contact with other cells in the culture, wherein the β-cells express a recombinant PDX-1 polynucleotide and a recombinant NeuroD/BETA2 polynucleotide, and wherein insulin gene expression is stimulated in the β-cells when exposed to an effective amount of a GLP-1 receptor agonist.

13. The culture of claim 12, wherein the GLP-1 receptor agonist is a GLP-1 analog.

14. The culture of claim 12, wherein the GLP-1 receptor agonist has an amino acid sequence of a naturally occurring peptide.

15. The culture of claim 14, wherein the GLP-1 receptor agonist is GLP-1, exendin-3, or exendin-4.

16. The culture of claim 12, wherein the cells are cultured as aggregates in suspension.

17. The culture of claim 12, wherein the β-cells are human β-cells.

18. The culture of claim 12, wherein the β-cells express a recombinant oncogene.

19. The culture of claim 18, wherein the β-cells express more than one recombinant oncogene.

20. The culture of claim 12, wherein the β-cells express a recombinant telomerase gene.

21. The culture of claim 12, wherein the β-cells are βlox5 cells.

22. A method of identifying a compound that modulates β-cell function, the method comprising the steps of contacting the culture of claim 12 with the compound and determining the effect of the compound on β-cell function.

23. A method of treating a diabetic subject by providing to the subject cells that secrete insulin in response to glucose, the method comprising the step of administering to the subject an effective amount of cells according to claim 1.

24. A method of treating a diabetic subject by providing to the subject cells that secrete insulin in response to glucose, the method comprising the steps of:

(i) contacting a culture of endocrine pancreas β-cells expressing a recombinant PDX-1 polynucleotide and a recombinant NeuroD/BETA2 polynucleotide with a GLP-1 receptor agonist, wherein the β-cells have been cultured under conditions such that the β-cells are in contact with other cells in the culture; and

(ii) administering the β-cells to the subject, thereby providing to the subject cells that secrete insulin in response to glucose.

25. The method of claim 24, wherein the diabetic subject is a human.

26. The method of claim 25, wherein the subject has Type I insulin dependent diabetes.

27. The method of claim 24, wherein the GLP-1 receptor agonist is a GLP-1 analog.

28. The method of claim 24, wherein the GLP-1 receptor agonist has an amino acid sequence of a naturally occurring peptide.

29. The method of claim 28, wherein the GLP-1 receptor agonist is GLP-1, exendin-3, or exendin-4.

30. The method of claim 24, wherein the β-cells are cultured as aggregates in suspension.

31. An endocrine pancreas β-cell comprising a recombinant PDX-1 polynucleotide and a recombinant NeuroD/BETA2 polynucleotide.

32. The β-cell of claim 31, wherein the β-cell is a human β-cell.

33. The β-cell of claim 31, wherein the β-cell expresses a recombinant oncogene.

34. The β-cell of claim 33, wherein the β-cell expresses more than one recombinant oncogene.

35. The β-cell of claim 31, wherein the β-cell expresses a recombinant telomerase gene.